PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2002-354522
(43)Date of publication of application : 06.12.2002

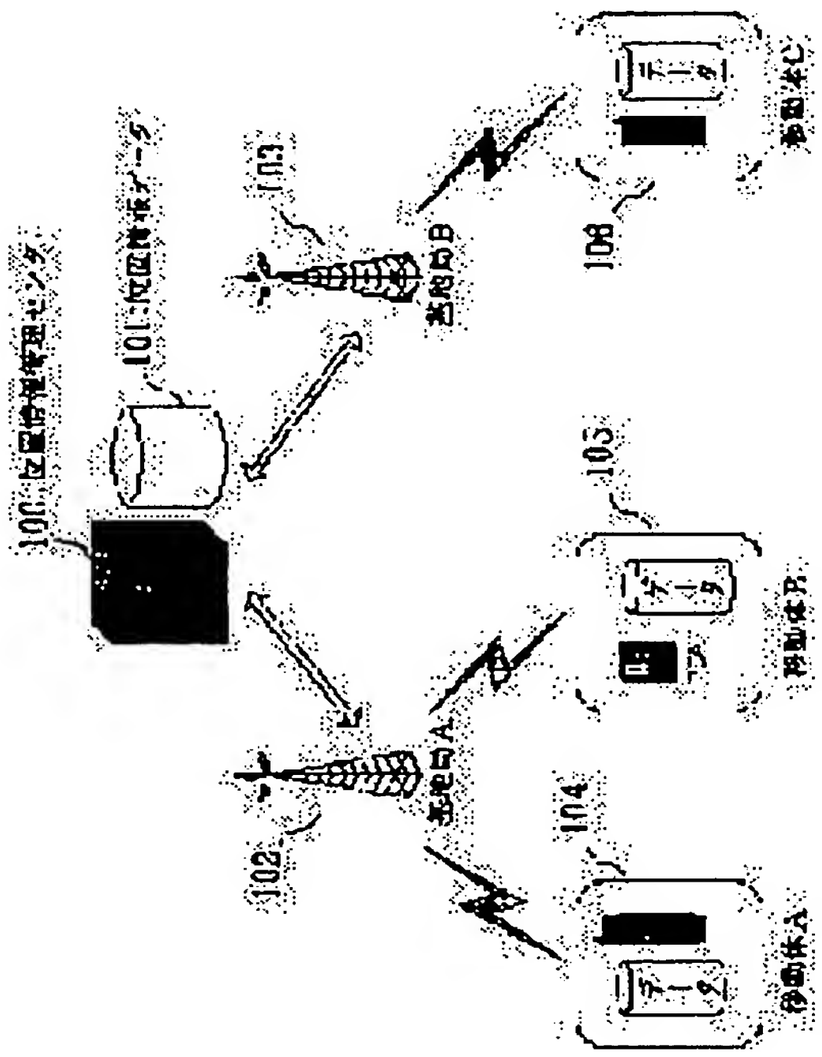
(51)Int.Cl. H04Q 7/20
G01C 21/00
G08G 1/13
H04Q 7/34

(21)Application number : 2001-161487
(22)Date of filing : 29.05.2001

(71)Applicant : NEC CORP
(72)Inventor : TATEKAWA TAKASHI

(54) POSITION INFORMATION DISPLAY SYSTEM, DISPLAY METHOD, AND POSITION DECISION METHOD

(57)Abstract:
PROBLEM TO BE SOLVED: To easily display relative distance and direction form the self-position of a mobile to the position of another mobile, on which the acquisition of the position information is permitted.
SOLUTION: The system includes a transmitting means for transmitting self-data stored as self-position information in moble terminals 104, 105, and 106, and a list for indicating the mobile terminal on which self-data opening is permitted, to base stations 102 and 103; a transmitting means for transmitting the self-data and the mobile terminal list with self-data opening permission to a position information management center 100; a means for forming the relative position information, which indicates the relative position of the self- terminal to the other mobile terminal indicated in the self-data opening permission list; a transmitting list for transmitting the relative position information to the self-terminal through the bas station; and a display means for displaying the data on the screen of the mobile self-terminal on the basis of the relative position information.



LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

CLAIMS

[Claim(s)]
[Claim 1] Two or more mobile terminals, these two or more mobile terminals, and two or more base stations that can be communicated, It has the positional information management pin center,large which manages the positional information of two or more of said mobile terminals through these two or more base stations. The self-data which are the location display system which acquires and displays said positional information of two or more of said mobile terminals, and said two or more mobile terminals have memorized as positional information of the mobile terminal of self, A means to transmit the self-data disclosure authorization place list which is a list which directs the mobile terminal with which disclosure of these self-data is permitted to the base station which manages said mobile terminal of self, A means by which said base station transmits said self-data and said self-data disclosure authorization place list to said positional information management pin center,large, Said positional information management pin center,large is based on said self-data and said self-data disclosure authorization place list. A means to create the relative-position information which shows the relative location to said mobile terminal of self of the mobile terminal directed on said self-data disclosure authorization place list, A means by which said positional information management pin center,large transmits said relative-position information to said mobile terminal of self through the base station which manages said mobile terminal of self, The positional information display system characterized by having a means by which said mobile terminal of self displays the location of said mobile terminal of self, and the mobile terminal directed on said self-data disclosure authorization place list on the screen of said mobile terminal of self based on said relative-position information.
[Claim 2] Said self-data disclosure authorization place list is a positional information display system according to claim 1 characterized by including the authorized state which shows [the identification code of a proper, and] the mobile terminal concerned whether the mobile terminal concerned is in a disclosure authorized state.
[Claim 3] Said positional information management pin center,large is a positional information display system according to claim 1 or 2 characterized by managing and accumulating said self-data and said self-data disclosure authorization place list as positional information data of two or more of said mobile terminals.
[Claim 4] Said two or more mobile terminals are positional information display systems according to claim 1 to 3 characterized by transmitting said self-data to the base station where each mobile terminal is managed periodically.
[Claim 5] Said two or more mobile terminals are positional information display systems according to claim 1 to 3 characterized by the thing which is the need, and for which said self-data can be

transmitted irregularly by the way in the base station where each mobile terminal is managed.
[Claim 6] Said two or more mobile terminals are positional information display systems according to claim 1 to 5 characterized by transmitting said self-data to the base station where each mobile terminal is managed irregularly by the demand of said location management pin center,large.
[Claim 7] Said base station is a positional information display system according to claim 1 to 6 characterized by receiving the relative-position information on a demand place mobile terminal over a requiring agency mobile terminal from said positional information management pin center,large, and transmitting the relative-position information concerned to a said demand former mobile by the demand of positional information acquisition of each mobile terminal.
[Claim 8] It has two or more mobile terminals, these two or more mobile terminals, and two or more base stations that can be communicated. A means by which are the location display system which acquires and displays said positional information of two or more of said mobile terminals, and said two or more mobile terminals memorize self-data as positional information of the mobile terminal of self, The positional information display system characterized by having a means by which each mobiles transmit and receive said self-data, and a means to display the relative-position information on other mobile terminals over said self-data.
[Claim 9] With the positional information management pin center,large which manages the positional information of two or more of said mobile terminals through two or more mobile terminals, these two or more mobile terminals, two or more base stations that can be communicated, and these two or more base stations The self-data which are the location method of presentation which acquires and displays said positional information of two or more of said mobile terminals, and said two or more mobile terminals have memorized as positional information of the mobile terminal of self, The step which transmits the self-data disclosure authorization place list which is a list which directs the mobile terminal with which disclosure of these self-data is permitted to the base station which manages said mobile terminal of self, The step at which said base station transmits said self-data and said self-data disclosure authorization place list to said positional information management pin center,large, Said positional information management pin center,large is based on said self-data and said self-data disclosure authorization place list. The step which creates the relative-position information which shows the relative location to said mobile terminal of self of the mobile terminal directed on said self-data disclosure authorization place list, The step and said mobile terminal of self which are transmitted to said mobile terminal of self through the base station where said positional information management pin center,large manages said mobile terminal of self for said relative-position information The positional information method of presentation characterized by including the step which displays the location of said mobile terminal of self, and the mobile terminal directed on said self-data disclosure authorization place list on the screen of said mobile terminal of self based on said relative-position information.
[Claim 10] The positional information method of presentation according to claim 9 characterized by displaying a relative distance corresponding to said mobile terminal of self of the mobile terminal directed on said self-data disclosure authorization place list, bearing, and the migration direction as said relative-position information.
[Claim 11] Said relative distance is the positional information method of presentation according to claim 10 characterized by what is displayed by the concentric circle centering on said mobile terminal of self.
[Claim 12] The positional information method of presentation according to claim 11

characterized by displaying the graduation which shows the radius of said concentric circle.
[Claim 13] Said bearing is claim 10 characterized by what is displayed by the direction directions mark which directs north, south, east and west thru/or the positional information method of presentation given in any 1 of 12.
[Claim 14] Said direction directions mark is the positional information method of presentation according to claim 13 characterized by making the screen above of said mobile terminal of self into north.
[Claim 15] Said direction directions mark is the positional information method of presentation according to claim 13 characterized by making an earth magnetism sensor pivotable corresponding to installation and said earth magnetism sensor at said mobile terminal of self.
[Claim 16] Said migration direction is claim 10 characterized by what is displayed by the arrow head on the screen of said mobile terminal of self thru/or the positional information method of presentation given in any 1 of 15.
[Claim 17] Each of the mobile terminal directed on said mobile terminal of self and said self-data disclosure authorization place list is claim 9 characterized by what is displayed by different emblem thru/or the positional information method of presentation given in any 1 of 16.
[Claim 18] Said emblem is the positional information method of presentation according to claim 17 characterized by being a photograph of his face.
[Claim 19] Claim 9 characterized by displaying the landmark for checking a location in addition to the mobile terminal directed on said mobile terminal of self, and said self-data disclosure authorization place list thru/or the positional information method of presentation given in any 1 of 18.
[Claim 20] Claim 9 to which the mobile terminal directed on said self-data disclosure authorization place list is characterized by what is displayed a power source OFF or also when unknown thru/or the positional information method of presentation given in any 1 of 19.
[Claim 21] Claim 9 characterized by displaying the current condition which the user of the mobile terminal displayed on said self-data disclosure authorization place list set as arbitration thru/or the positional information method of presentation given in any 1 of 20.
[Claim 22] Claim 9 which chooses the mobile terminal displayed on said self-data disclosure authorization place list, displays two or more transmitting approaches of receiving the mobile terminal concerned, and is further characterized by enabling it to choose any one of said two or more of the transmitting approaches on a screen thru/or the positional information method of presentation given in any 1 of 21.
[Claim 23] The positional information method of presentation according to claim 22 characterized by having the function to transmit messages, such as a telephone and an electronic mail, to the mobile terminal displayed on said screen.
[Claim 24] The fixing approach characterized by determining the location of a mobile terminal by considering that the location of two or more mobile terminals is the location of the base station in which the mobile terminal and communication link concerned after migration are possible when it is regarded as these two or more mobile terminals and the location of the base station which can be communicated and the mobile terminal concerned moves.
[Claim 25] The fixing approach characterized by what the base station which can transmit and receive data determined only in the direction in which two or more mobile terminals are located in sector-ization of an antenna, and said two or more mobile terminals exist.
[Claim 26] The fixing approach characterized by having transmitted two or more mobile terminals, the location of the base station which can be communicated, and the auxiliary

positional information that can be transmitted and received only in the short distance of the mobile terminal concerned to the positional information management pin center,large which manages the positional information of two or more of said mobile terminals, and determining the exact location of two or more of said mobile terminals.
[Claim 27] Said auxiliary positional information is the fixing approach according to claim 26 characterized by relaying LAN or the server by which wireless LAN connection was made to the personal computer by which Bluetooth (Bluetooth) connection was made, and being transmitted to said positional information management pin center,large.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the positional information display system which displays the positional information of a mobile terminal, and relates to the fixing approach at the positional information display system which displays simply the positional information of distance with another mobile terminal, bearing, the migration direction, etc. on the screen of a self-mobile terminal especially, and its method-of-presentation list.
[0002]
[Description of the Prior Art] The positional information display system of the conventional mobile terminal has the system which maps positional information etc. on a map in acquisition of positional information using GPS (Global Positioning System; Global Positioning System) as indicated by JP,2000-331284,A.
[0003]
[Problem(s) to be Solved by the Invention] However, in above conventional equipment, in order to use systems, such as GPS, it is necessary to have functions, such as a GPS receiver, in a mobile side, and there was a problem that it could not display simply.
[0004] Moreover, since functions, such as GPS, are used for above conventional equipment and it can grasp a comparatively detailed location to the map up etc. For a user, it has a problem on the privacy that a location detailed beyond the need on the contrary will be known by the others. Therefore, there was a trouble of using it only on the conditions restricted [travel / there are many users who have resistance in carrying out attendance in the usual life, and / users / by the group / actually].
[0005] This invention was made in view of the situation mentioned above, and aims at offering the positional information display system which displays simply a relative distance and the bearing to other mobiles to which positional information acquisition was permitted from the own location of a mobile on that display screen, and its method of presentation in mobile terminals, such as a cellular phone and personal handy phone.
[0006] Moreover, this invention is an object for a display, and also aims at offering the positional information display system which displays the condition of the arbitration at that event of a mobile on real time, and its method of presentation.
[0007] Furthermore, this invention is an object for a display, and also aims at offering the positional information display system which sends messages, such as a call and an electronic mail, etc., and its method of presentation to a mobile.
[0008]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, invention according to claim 1 Two or more mobile terminals, these two or more mobile terminals, and two or more base stations that can be communicated, It has the positional information management pin center,large which manages the positional information of two or more above-mentioned mobile terminals through these two or more base stations. The self-data which are the location display system which acquires and displays the above-mentioned positional information of two or more above-mentioned mobile terminals, and two or more above-mentioned mobile terminals have memorized as positional information of the mobile terminal of self, A means to transmit the self-data disclosure authorization place list which is a list which directs the mobile terminal with which disclosure of these self-data is permitted to the base station which manages the above-mentioned mobile terminal of self, A means by which the above-mentioned base station transmits the above-mentioned self-data and the above-mentioned self-data disclosure authorization place list to the above-mentioned positional information management pin center,large, The above-mentioned positional information management pin center,large is based on the above-mentioned self-data and the above-mentioned self-data disclosure authorization place list. A means to create the relative-position information which shows the relative location to the above-mentioned mobile terminal of self of the mobile terminal directed on the above-mentioned self-data disclosure authorization place list, A means by which the above-mentioned positional information management pin center,large transmits the above-mentioned relative-position information to the above-mentioned mobile terminal of self through the base station which manages the above-mentioned mobile terminal of self, The above-mentioned mobile terminal of self is characterized by having a means to display the location of the above-mentioned mobile terminal of self, and the mobile terminal directed on the above-mentioned self-data disclosure authorization place list on the screen of the above-mentioned mobile terminal of self, based on the above-mentioned relative-position information.

[0009] Moreover, invention according to claim 2 relates to a positional information display system according to claim 1, and the above-mentioned self-data disclosure authorization place list is characterized by including the authorized state which shows [the identification code of a proper, and] the mobile terminal concerned whether the mobile terminal concerned is in a disclosure authorized state.

[0010] Moreover, invention according to claim 3 relates to a positional information display system according to claim 1 or 2, and the above-mentioned positional information management pin center,large is characterized by managing and accumulating the above-mentioned self-data and the above-mentioned self-data disclosure authorization place list as positional information data of two or more above-mentioned mobile terminals.

[0011] Moreover, invention according to claim 4 relates to a positional information display system according to claim 1 to 3, and two or more above-mentioned mobile terminals are characterized by transmitting said self-data to the base station where each mobile terminal is managed periodically.

[0012] Moreover, invention according to claim 5 relates to a positional information display system according to claim 1 to 3, and said two or more mobile terminals are characterized by the thing which is the need and for which said self-data can be transmitted irregularly by the way in the base station where each mobile terminal is managed.

[0013] Moreover, invention according to claim 6 relates to a positional information display system according to claim 1 to 5, and said two or more mobile terminals are characterized by transmitting the above-mentioned self-data to the base station where each mobile terminal is

managed irregularly by the demand of the above-mentioned location management pin center,large.
[0014] Moreover, invention according to claim 7 relates to a positional information display system according to claim 1 to 6, and by the demand of positional information acquisition of each mobile terminal, the above-mentioned base station receives the relative-position information on a demand place mobile terminal over a requiring agency mobile terminal from the above-mentioned positional information management pin center,large, and is characterized by transmitting the relative-position information concerned to the above-mentioned requiring agency mobile.
[0015] Moreover, invention according to claim 8 is equipped with two or more mobile terminals, these two or more mobile terminals, and two or more base stations that can be communicated. A means by which are the location display system which acquires and displays the above-mentioned positional information of two or more above-mentioned mobile terminals, and two or more above-mentioned mobile terminals memorize self-data as positional information of the mobile terminal of self, It is characterized by having a means by which each mobiles transmit and receive the above-mentioned self-data, and a means to display the relative-position information on other mobile terminals over the above-mentioned self-data.
[0016] Invention according to claim 9 with moreover, the positional information management pin center,large which manages the positional information of two or more above-mentioned mobile terminals through two or more mobile terminals, these two or more mobile terminals, two or more base stations that can be communicated, and these two or more base stations The self-data which are the location method of presentation which acquires and displays the above-mentioned positional information of two or more above-mentioned mobile terminals, and two or more above-mentioned mobile terminals have memorized as positional information of the mobile terminal of self, The step which transmits the self-data disclosure authorization place list which is a list which directs the mobile terminal with which disclosure of these self-data is permitted to the base station which manages the above-mentioned mobile terminal of self, The step at which the above-mentioned base station transmits the above-mentioned self-data and the above-mentioned self-data disclosure authorization place list to the above-mentioned positional information management pin center,large, The above-mentioned positional information management pin center,large is based on the above-mentioned self-data and the above-mentioned self-data disclosure authorization place list. The step which creates the relative-position information which shows the relative location to the above-mentioned mobile terminal of self of the mobile terminal directed on the above-mentioned self-data disclosure authorization place list, The step and the above-mentioned mobile terminal of self which are transmitted to the above-mentioned mobile terminal of self through the base station where the above-mentioned positional information management pin center,large manages the above-mentioned mobile terminal of self for the above-mentioned relative-position information It is characterized by including the step which displays the location of the above-mentioned mobile terminal of self, and the mobile terminal directed on the above-mentioned self-data disclosure authorization place list on the screen of the above-mentioned mobile terminal of self based on the above-mentioned relative-position information.
[0017] Moreover, invention according to claim 10 relates to the positional information method of presentation of the claim 9 above-mentioned publication, and is characterized by displaying a relative distance corresponding to the above-mentioned mobile terminal of self of the mobile terminal directed on the above-mentioned self-data disclosure authorization place list, bearing,

and the migration direction as the above-mentioned relative-position information.
[0018] Moreover, invention according to claim 11 relates to the positional information method of presentation according to claim 10, and is characterized by displaying up diagnosis pair-distance by the concentric circle centering on the above-mentioned mobile terminal of self.
[0019] Moreover, invention according to claim 12 relates to the positional information method of presentation according to claim 11, and is characterized by displaying the graduation which shows the radius of the above-mentioned concentric circle.
[0020] Moreover, invention according to claim 13 relates to claim 10 thru/or the positional information method of presentation given in any 1 of 12, and the above-mentioned bearing is characterized by what is displayed by the direction directions mark which directs north, south, east and west.
[0021] Moreover, invention according to claim 14 relates to the positional information method of presentation according to claim 13, and is characterized by the above-mentioned direction directions mark making north the screen above of the above-mentioned mobile terminal of self.
[0022] Moreover, invention according to claim 15 relates to the positional information method of presentation according to claim 13, and is characterized by the above-mentioned direction directions mark making an earth magnetism sensor pivotable at the above-mentioned mobile terminal of self corresponding to installation and the above-mentioned earth magnetism sensor.
[0023] Moreover, invention according to claim 16 relates to claim 10 thru/or the positional information method of presentation given in any 1 of 15, and is characterized by expressing the above-mentioned migration direction as an arrow head on the screen of the above-mentioned mobile terminal of self.
[0024] Moreover, invention according to claim 17 relates to claim 9 thru/or the positional information method of presentation given in any 1 of 16, and each of the mobile terminal directed on the above-mentioned mobile terminal of self and the above-mentioned self-data disclosure authorization place list is characterized by what is displayed by different emblem.
[0025] Moreover, invention according to claim 18 relates to the positional information method of presentation according to claim 17, and the above-mentioned emblem is characterized by being a photograph of his face.
[0026] Moreover, invention according to claim 19 relates to claim 9 thru/or the positional information method of presentation given in any 1 of 18, and is characterized by displaying the landmark for checking a location in addition to the mobile terminal directed on the above-mentioned mobile terminal of self, and the above-mentioned self-data disclosure authorization place list.
[0027] Moreover, invention according to claim 20 relates to claim 9 thru/or the positional information method of presentation given in any 1 of 19, and the mobile terminal directed on the above-mentioned self-data disclosure authorization place list is characterized by what is displayed a power source OFF or also when unknown.
[0028] Moreover, invention according to claim 21 relates to claim 9 thru/or the positional information method of presentation given in any 1 of 20, and is characterized by displaying the current condition which the user of the mobile terminal displayed on the above-mentioned self-data disclosure authorization place list set as arbitration.
[0029] Moreover, invention according to claim 22 relates to claim 9 thru/or the positional information method of presentation given in any 1 of 21, chooses the mobile terminal displayed on the above-mentioned self-data disclosure authorization place list, displays two or more transmitting approaches of receiving the mobile terminal concerned, and is characterized by

enabling it to choose any one of the transmitting approaches of further the above-mentioned plurality on a screen.
[0030] Moreover, invention according to claim 23 relates to the positional information method of presentation according to claim 22, and is characterized by having the function to transmit messages, such as a telephone and an electronic mail, to the mobile terminal displayed on the above-mentioned screen.
[0031] Moreover, invention according to claim 24 is characterized by determining the location of a mobile terminal by regarding it as the location of the base station in which the mobile terminal and communication link concerned after migration are possible, when it considers that the locations of two or more mobile terminals are these two or more mobile terminals and the location of the base station which can be communicated and the mobile terminal concerned moves.
[0032] Moreover, invention according to claim 25 is located [-ization / of an antenna / sector] in two or more mobile terminals, and is characterized by what the base station which can transmit and receive data determines only in the direction in which two or more above-mentioned mobile terminals exist.
[0033] Moreover, invention according to claim 26 transmits two or more mobile terminals, the location of the base station which can be communicated, and the auxiliary positional information that can be transmitted and received only in the short distance of the mobile terminal concerned to the positional information management pin center,large which manages the positional information of two or more above-mentioned mobile terminals, and is characterized by determining the exact location of two or more above-mentioned mobile terminals.
[0034] Moreover, invention according to claim 27 relates to the fixing approach according to claim 26, and it is characterized by for the above-mentioned auxiliary positional information relaying LAN or the server by which wireless LAN connection was made to the personal computer by which Bluetooth (Bluetooth) connection was made, and transmitting it to the above-mentioned positional information management pin center,large.
[0035] As explained above, this invention is characterized by having especially the function which displays in simple a relative distance and the relative direction to other mobiles (henceforth other mobiles) to which positional information acquisition was permitted from the own (henceforth a self-mobile) location of a mobile on that display screen in mobiles, such as a cellular phone and PHS.
[0036] Moreover, it is characterized also by having the function which displays the condition of the arbitration set up at the event of the other mobiles for [the] a display, and the function which sends messages, such as a call and an electronic mail, etc. to the other mobiles for a display.
[0037]
[Embodiment of the Invention] Next, the gestalt of implementation of this invention is explained to a detail with reference to a drawing. Explanation is concretely explained using an example. Drawing 1 is the schematic diagram showing the configuration of the positional information display system which is one example of this invention. Hereafter, the configuration of the positional information display system of this example is explained. The positional information display system of this example consists of a positional information management pin center,large 100, two or more mobile terminals (henceforth a mobile) 104 thru/or 106, and each base station 102,103 that covers the area of each mobile. A mobile A104, a mobile B105, and a mobile C106 show each mobile, and the base station A102 and the base station B103 show each base station.

Moreover, a mobile A104 and a mobile C106 are cellular phones, a mobile B105 is PDA (pocket mold information machines and equipment), and each mobile has positional information data. The positional information management pin center,large 100 manages and stores the positional information data of each mobile. A base station A102 and a base station B103 are base stations which cover the area of each mobile, and receive the positional information data which each mobile 104 ** 106 in each area has memorized. Reception of positional information data is irregularly performed by the demand of a mobile 104 thru/or 106, or the positional information management pin center,large 100 etc. from each mobile 104 thru/or 106 periodically or again. Each base station 102,103 transmits the data to the positional information management pin center,large 100, after receiving positional information data from each mobile 104 ** 106. Moreover, by each mobile 104 thru/or the demand of 106, each base station 102,103 can receive the relative-position information over the requiring agency mobile of a demand place mobile from the positional information management pin center,large 100, and can transmit the data to a requiring agency mobile. A requiring agency mobile (henceforth a self-mobile) displays the relative-position information over the self-mobile of other mobiles on the display screen of a self-mobile by receiving the positional information data of a demand place mobile (henceforth other mobiles) to carry out a screen display through a base station 102,103 from the positional information management pin center,large 100.

[0038] Drawing 2 is drawing showing an example of the positional information data used by the positional information display system which is one example of this invention. The positional information data 101 in this example are data which the positional information management pin center,large 100 manages, and it having been permitted that this data indicates the self-data 201 and self-data as data of a self-mobile, and also acquiring the data of the self-data disclosure authorization place list 202 and other mobiles as data of a mobile was permitted, and also they include the other data acquisition authorization place list 203 as data of a mobile.

[0039] The self-data 201 are data of the self-mobile which is a mobile of a requiring agency, and the identification code of a self-mobile, the current position, the data in which a current condition is shown are stored. In this example, that it is under [work] saying data are stored as data in which the number of the base station where the self-data 201 cover the telephone number of a self-mobile as identification code, and cover the self-mobile as the current position or a name, and a current condition are shown. Moreover, when the user of a self-mobile has permitted disclosure of the self-data 201 to other mobiles, the self-data 201 were registered into the base stations 102 and 103 which cover the self-mobile, the positional information management pin center,large 100, or the self-data disclosure authorization place list 202, and also they are data automatically transmitted by the demand from a mobile.

[0040] The self-data disclosure authorization place list 202 serves as the point which gives the authorization which discloses the positional information of a self-mobile, and also is data of a mobile, and the data 205 grade which shows the identification code 204 of each ******** and an authorized state is stored. In this example, the data in which the authorized state over positional information disclosure of a self-mobile is shown for every identification code are stored as identification code 204 as data 205 which the telephone number of other mobiles etc. shows an authorized state. As data in which an authorized state is shown, they are authorization, momentary prohibition, etc.

[0041] The positional information display was permitted to the other data acquisition authorization place list 203, and also it is data of a mobile, and the data 208 in which the current condition which the identification code 206 of each ********, the relative-position information

207 on each ******** to a self-mobile, and the user of each ******** set as arbitration is shown are stored. In this example, the bearing of each ******** [as opposed to a self-mobile in the telephone number of each ******** etc.], distance, etc. as relative-position information 207 as identification code 206 (it corresponds to 1km south-southwest, 3km of west, 10km northeast, etc. and a self-mobile, and also they are the bearing of a mobile, and the information on distance) The information on various conditions ("it is sleeping" etc. "****", "busyness", and "during migration") as data 208 which show a current condition is stored. In addition, as relative-position information 207, if bearing and distance cannot be specified, it is considering as the outside of the circle.

[0042] Next, with reference to drawing 1 and drawing 2 , an exchange of the positional information data 101 mentioned above is explained concretely. For example, a mobile A104 transmits the self-data 201 memorized as a self-mobile, and the identification code 204 of a mobile C106 to a base station A102, and a base station A102 transmits those data to the positional information management pin center,large 100. The positional information management pin center,large 100 takes out the positional information of the mobile A104 corresponding to the received self-data 201, and the positional information of the mobile C106 corresponding to identification code 204 from the positional information data 101. From the positional information of a mobile A104, and the positional information of a mobile C106, the positional information management pin center,large 100 creates the relative-position information 207 which is the relative positional information of the mobile C106 to a mobile A104, and transmits it to a base station A102. A base station A102 transmits the received relative-position information 207 to a mobile A104. The mobile A104 which received relative-position information displays the location of a mobile C106 on the display screen while memorizing the relative-position information in a storage area.

[0043] Next, actuation of the positional information display system which is one example of this invention is explained. Drawing 3 is a flow chart which shows actuation of the positional information display system of this example. This flow chart shows an example of the actuation at the time of location data transmission and reception. Hereafter, actuation when location data are required of a mobile C106 from a mobile A104 is explained to a detail. First, the positional information demand to the mobile C106 which is a demand place relays a base station A102 from the mobile A104 which is a requiring agency, and it is transmitted to the positional information management pin center,large 100 (step 301). At this time, a mobile A104 also transmits the self-data 201 and the self-data disclosure authorization place list 202 as positional information data with a positional information demand. The positional information data 201 are referred to in the positional information management pin center,large 100. Distinguish how [by which the identification code 204 of a mobile A104 is contained in the self-data disclosure authorization place list 202 of mobiles C106] it is (step 302), and when disclosure authorization is carried out The location data of a mobile C106 are changed into relative-position data from the location of a mobile A104 (step 305), and relative-position data are transmitted to the mobile A104 which is a requiring agency (step 306). When disclosure authorization is not carried out, a base station B103 is relayed to the mobile C106 which is a demand place, disclosure authorization is checked (step 303), it waits for the response from a mobile C106, and disclosure authorization or disapproval is distinguished (step 304). In disclosure authorization, it progresses at the flow after step 305. In the case of disclosure disapproval, a base station A102 is relayed, and the data that it is location data disclosure refusal are transmitted to the mobile A104 which is a requiring agency (step 307), and it ends (step 308).

[0044] Next, the positional information method of presentation which is the example of this invention is explained to a detail. Drawing 4 is the schematic diagram showing the positional information method of presentation which is the 1st example of this example. The positional information method of presentation of this example shows the symbols list 403 as shown in the screen right, in order to ** the current condition of a self-mobile and other mobiles simultaneously. The symbols list 403 shows "itself", "****", "busyness", and the emblem of stellate, a round shape, a triangular mold, and a batten mold "is working", respectively. These emblems can be set as arbitration by the user. First, the circle of a predetermined radius displays the concentric circle 400 by which two or more drawing was carried out, the graduation 402 to show the radius of this concentric circle 400 is displayed, and the bearing directions mark 401 to show bearing is displayed further. The star type emblem 404 which shows itself is displayed on the core of a concentric circle 400, and the location of other mobiles is displayed on it based on a concentric circle 400, the bearing directions mark 401, and a graduation 402. An emblem is displayed on the location according to the concentric circle 400 mentioned above, the bearing directions section 401, and a graduation 402, in order to also show the relative location to the self-mobile of other mobiles. The graduation 402 shows 0 thru/or a 5km graduation to the screen lower right. A current condition is "****" among other mobiles, a current condition is "busyness" in the round emblem 405,407 about a mobile, a current condition "is working" a mobile by the emblem 406 of a triangular mold, and also the mobile is displayed by the emblem 408 of a batten mold.

[0045] According to this example, as for the round emblem 405,407, it is in the location of 1.5km of northwestern bearing, and also a mobile is current "****", it is in about 4km of west bearing, and also a mobile shows that it is current "****." Moreover, it is in the location of about 2.5km of southeastern bearing, and also the emblem 406 of a triangular mold shows that a mobile is current "busyness." Furthermore, it is in a location more distant than 5km of southwest bearing, and also the emblem 408 of a batten mold shows a mobile "is working" now.

[0046] Drawing 5 is the schematic diagram showing the positional information method of presentation which is the 2nd example of this example. The positional information method of presentation of this example displays that location by the character data 504,505,506,508 set up beforehand instead of the emblem mentioned above. As shown in this drawing, character data can use a photograph of his face. Moreover, other mobiles can also display character data 503 on the specific area besides a concentric circle 400, when [, such as a power source OFF and the outside of the circle,] unknown. Furthermore, the character data 503 in this case may be other emblems.

[0047] Drawing 6 is the schematic diagram showing the positional information method of presentation which is the 3rd example of this example. In the 2nd example mentioned above, the positional information method of presentation of this example is the example which put in character data 508 in the concentric circle 600, and was made into character data 608 by displaying the concentric circle 400 which was the maximum radius of about 5km by the concentric circle with a maximum radius of about 10km in drawing 5 , as shown in drawing 6 , in order to display the character data 508 protruded from the concentric circle 400 in a concentric circle. Thus, when character data 508 does not enter in the display rectangle of a concentric circle, the display rectangle can be expanded to arbitration and character data 608 can also be put in in a concentric circle.

[0048] Drawing 7 is the schematic diagram showing the positional information method of presentation which is the 4th example of this example. The positional information method of

presentation of this example shows the mark 705,706 of the arrow head which shows the migration direction of other mobiles from the time series of positional information to the mobile 505,506 which is moving, as shown in this drawing. It is shown that the mobile 505 is moving the arrow-head mark 705 in the direction of the upper right, i.e., a northeast, and the arrow-head mark 706 shows that the mobile 506 is moving westward. Moreover, to the mobile 508 which is not moving, the condition under halt is expressed as the mark 708 of a rectangular head. Or it is an alphabetic character about the condition of having been set as arbitration by each mobile, namely, a screen display of the various additional information, such as displaying conditions, such as "it being busy" "among ****" and "it sleeping", by the alphabetic character 701 thru/or 703, can be carried out.

[0049] Drawing 8 is the schematic diagram showing the positional information method of presentation which is the 5th example of this example. The positional information method of presentation of this example is made into distance and a certain amount of rule of thumb of bearing by displaying the landmark of the emblems 803, i.e., a station, such as a building used as the mark in a display rectangle, a shrine 802, and works 801 grade. Moreover, this landmark 801 thru/or 803 may be the alphabetic character itself, such as "works", a "shrine", and a "station."

[0050] Drawing 9 is the schematic diagram showing the positional information method of presentation which is the 6th example of this example. The positional information method of presentation of this example shows the relative-position information from a self-mobile in a screen, and also carries out a screen display of whether a message is transmitted to a mobile or it telephones, and the transmitting approach, and enables it to choose these transmitting approach suitably. If it explains concretely, relative-position information will be displayed and also the mobile 505 of a transmission place will be chosen as a mobile 505 by actuation of doubling cursor 901. Then, the menu 902 which chooses the transmitting approach appears and it becomes possible by choosing the transmitting approach from the menu 902 with an arrow head 903 to send various messages. As a class of the message-sending approach, the various message-sending approaches with available mobiles, such as short mail, transmit the electronic mail to telephone.

[0051] As mentioned above, although the positional information method of presentation was explained, about the screen display of a self-mobile, there may also be the method of presentation which displays the location of a self-mobile on the location which is not the core of the display screen.

[0052] Moreover, although the direction directions mark 401 which shows the bearing of the north, south, east and west on the display screen is based on north being displayed on screen above, an earth magnetism sensor etc. is formed in a self-mobile, and when the bearing which the self-mobile has turned to can be recognized, the method of presentation of rotating according to the bearing is also considered.

[0053] Moreover, only within the limits of the specification which exists [km / less than 5km, / less than 10 etc.], without displaying no positional information of the identification codes 204 set as the other data acquisition authorization place list 202 can also be displayed.

[0054] Moreover, the positional information of the mobile which shows the condition with it better [to avoid message sending, such as "busyness" and "under work",] is desirable in order for narrowing down the indicative data of not displaying etc. to also recognize information efficiently.

[0055] Moreover, only when the mobile of the identification code set up without displaying

positional information on a screen is near self-mobiles, such as less than 3 etc.km, the function which notifies the user of a self-mobile of that to a screen display, a sound, etc. is also considered.

[0056] Next, the fixing approach of the mobile concerning this invention is explained. Drawing 10 is the schematic diagram showing the fixing approach which is the 1st example concerning this invention. As the fixing approach of this example is shown in this drawing, a mobile 107 is in [of a base station A102 / which can be communicated] area. In this case, let the location of a base station A102 be the location of a mobile 107. Moreover, when a mobile 107 moves into [of a base station B103 / which can be communicated] area, let the location of a base station B103 be the location of a mobile 107.

[0057] Drawing 11 is the schematic diagram showing the fixing approach which is the 2nd example concerning this invention. The fixing approach of this example can narrow down the area where a mobile 107 exists by carrying out data transmission etc. only in the direction in which the mobile 107 which is transmitting and receiving by a base station A102 and a base station B103 limiting the direction of transmission and reception by sector-ization of an antenna etc. exists. It is possible for a twist to be able to limit a data transmit direction to a base station A102 and a base station B, and to determine the location of a mobile 107 as accuracy more by this, from the data of the data transmit direction from two or more base stations A102 and B103. Moreover, even when the number of base stations is one, it is possible to narrow down a communications area and the area where a mobile 107 exists from a transmit direction.

[0058] Drawing 12 is the schematic diagram showing the fixing approach which is the 3rd example concerning this invention. The fixing approach of this example is the approach of acquiring detailed positional information using the auxiliary positional information which can be transmitted and received only at a short distance. Auxiliary positional information can consider the case where use together with the positional information from a base station 102,103, and the location of a mobile is determined, and the case where only auxiliary location equipment determines a location. As an approach of acquiring auxiliary positional information, approaches, such as Bluetooth (Bluetooth), LAN, and making wireless LAN connection, can be considered. As an installation, various stores, such as a department store and a convenience store, a building, a public telephone, etc. can be considered. A server 130 etc. is relayed, it is transmitted to the positional information management pin center,large 100, and the auxiliary positional information acquired from these is synthesized with the positional information data 101 from a base station 102,103, and builds the positional information data of a mobile 107. Like [in this case], as an example of the mobile in the case where LAN, wireless LAN, etc. are used, there are a note PC 132 and desktop PC133 grade, a server 130 is relayed and the positional information of a note PC 132 and desktop PC133 grade can also manage it with the positional information management pin center,large 100. Moreover, as an approach of presuming the distance from a base station 102,103, how to presume, from the magnitude of transmitted power is also considered.

[0059] Drawing 13 is the schematic diagram showing the positional information display system which are other examples of this invention. Hereafter, the positional information display system of this example is explained. As shown in this drawing, in transmitting and receiving the positional information data 201, and transmitting and receiving the positional information data 201 only by Mobiles A, B, and C, the same function as the transceiver mode and the cellular phone of PHS is added, and each mobiles transmit [the positional information display systems of this example are only a mobile 104 thru/or 106, and] and receive each positional information. Each mobile

shall have obtained the self-data which are already their positional information from a base station etc. about their own positional information data. Moreover, only when both mobiles exist in the distance from a self-mobile to other mobiles which can transmit and receive direct positional information simply in simple, a screen display is carried out, and the function which notifies the user of a self-mobile of the information to a sound etc. is considered.
[0060] As mentioned above, although the example of this invention has been explained in full detail with reference to a drawing, a concrete configuration is not restricted to this example, and even if there is modification of a design of the range which does not deviate from the summary of this invention etc., it is included in this invention. For example, in an above-mentioned example although [the positional information management pin center,large 100] the positional information data 101 are memorized It is not limited to this but which data of the positional information data 101 each mobile 104 thru/or 106, or the positional information management pin center,large 100 memorizes has various patterns. For example, may constitute, as had all the positional information data 101 in each mobile 104 thru/or 106, and You may constitute so that both each mobile 104 and thru/or 106 and the positional information management pin center,large 100 may have all the positional information data 101, and you may constitute so that each mobile 104 thru/or 106 may memorize only identification code and the positional information management pin center,large 100 may memorize the remaining data.
[0061] Moreover, in the example mentioned above, although considered as the telephone number, identification code 204,206 is not limited to this, but it may be constituted so that it may consider as the name registered into the ID number of each mobile proper, the mail address, and the other arbitration other than the telephone number, or the combination of it plurality.
[0062] Moreover, in the example mentioned above, although considered as authorization, momentary prohibition, etc. as data 205 in which an authorized state is shown, it is not limited to this, but you may constitute so that only the time zone of arbitration may be used as data, such as authorization or disapproval.
[0063] Moreover, in the example mentioned above, although [the relative-position information 207 / the example which uses the location management pin center,large of drawing 1] the positional information management pin center,large 100 changes, it is not limited to this, but it may consist of cases where positional information is transmitted and received by the system only using the mobile of drawing 13 so that it may change within the mobile to display.
[0064] Moreover, in the example mentioned above, although considered as PHS, the cellular phone, and the personal digital assistant device, the class of mobile is not limited to this, but when it is the system which can connect using LAN etc., it may be constituted so that all the terminals of personal computers (a desktop mold, note type, etc.) etc. may be included.
[0065] Moreover, in the example mentioned above, although explained as a hardware configuration, it can also constitute so that specific processing may be performed to a computer by the program which controls actuation of these hardware.
[0066]
[Effect of the Invention] As explained above, according to the configuration of this invention, it corresponded to the identification code which is in another data acquisition authorization place list on a screen, and also it is possible to recognize a relative distance and the bearing from a self-mobile of a mobile. Moreover, it is shown the location table on the screen, and also it is possible to recognize the current condition which the user of a mobile set as arbitration. Furthermore, it is displayed on the screen of a self-mobile, and also it is possible to have the communication means of transmitting e-mail, in addition transmitting a message etc. telephoned

to a mobile. Moreover, since the positional information display of other mobiles is not carried out so much to a detail, the thing which has also been related with disturbance of privacy and to which extent relaxation is carried out and positive utilization is urged is possible.

[Translation done.]

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the schematic diagram showing the configuration of the positional information display system which is the example of this invention.
[Drawing 2] It is the schematic diagram showing the configuration of the positional information data concerning the positional information display system which is the example of this invention.
[Drawing 3] It is the flow chart which shows actuation of the positional information display system which is the example of this invention.
[Drawing 4] It is the schematic diagram showing the positional information method of presentation which is the 1st example of this invention.
[Drawing 5] It is the schematic diagram showing the positional information method of presentation which is the 2nd example of this invention.
[Drawing 6] It is the schematic diagram showing the positional information method of presentation which is the 3rd example of this invention.
[Drawing 7] It is the schematic diagram showing the positional information method of presentation which is the 4th example of this invention.
[Drawing 8] It is the schematic diagram showing the positional information method of presentation which is the 5th example of this invention.
[Drawing 9] It is the schematic diagram showing the positional information method of presentation which is the 6th example of this invention.
[Drawing 10] It is the schematic diagram showing the fixing approach which is the 1st example concerning this invention.
[Drawing 11] It is the schematic diagram showing the fixing approach which is the 2nd example concerning this invention.
[Drawing 12] It is the schematic diagram showing the 3rd fixing approach concerning this invention.
[Drawing 13] It is the schematic diagram showing the positional information structure of a system which is other examples of this invention.
[Description of Notations]
100 Positional Information Management Pin Center,large
102 Base Station A
103 Base Station B
104 Mobile A
105 Mobile B
106 Mobile C

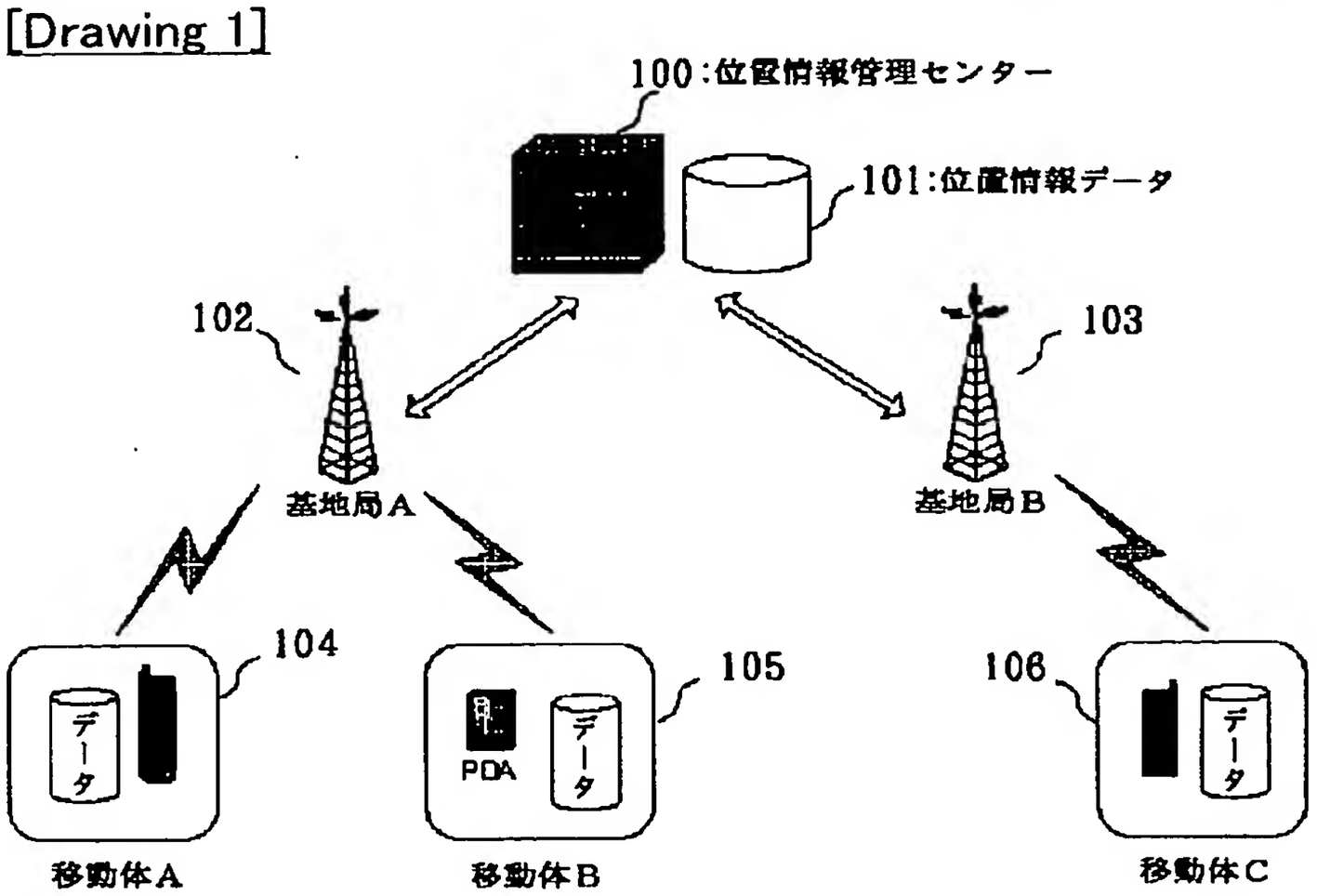
130 Server
132 Note PC
133 Desktop PC
201 Positional Information Data
202 Self-Data Disclosure Authorization Place List
203 Other Data Acquisition Authorization Place List
204 Identification Code (Self-Data Disclosure Authorization Place List)
205 Data in which Authorized State is Shown
206 Identification Code (Other Data Acquisition Authorization Place List)
207 Relative-Position Information
208 Data in which Current Condition is Shown
400,600 Concentric circle
401 Direction Directions Mark
402 Graduation
403 Symbols List
404 405,406,407,408 Emblem

[Translation done.]

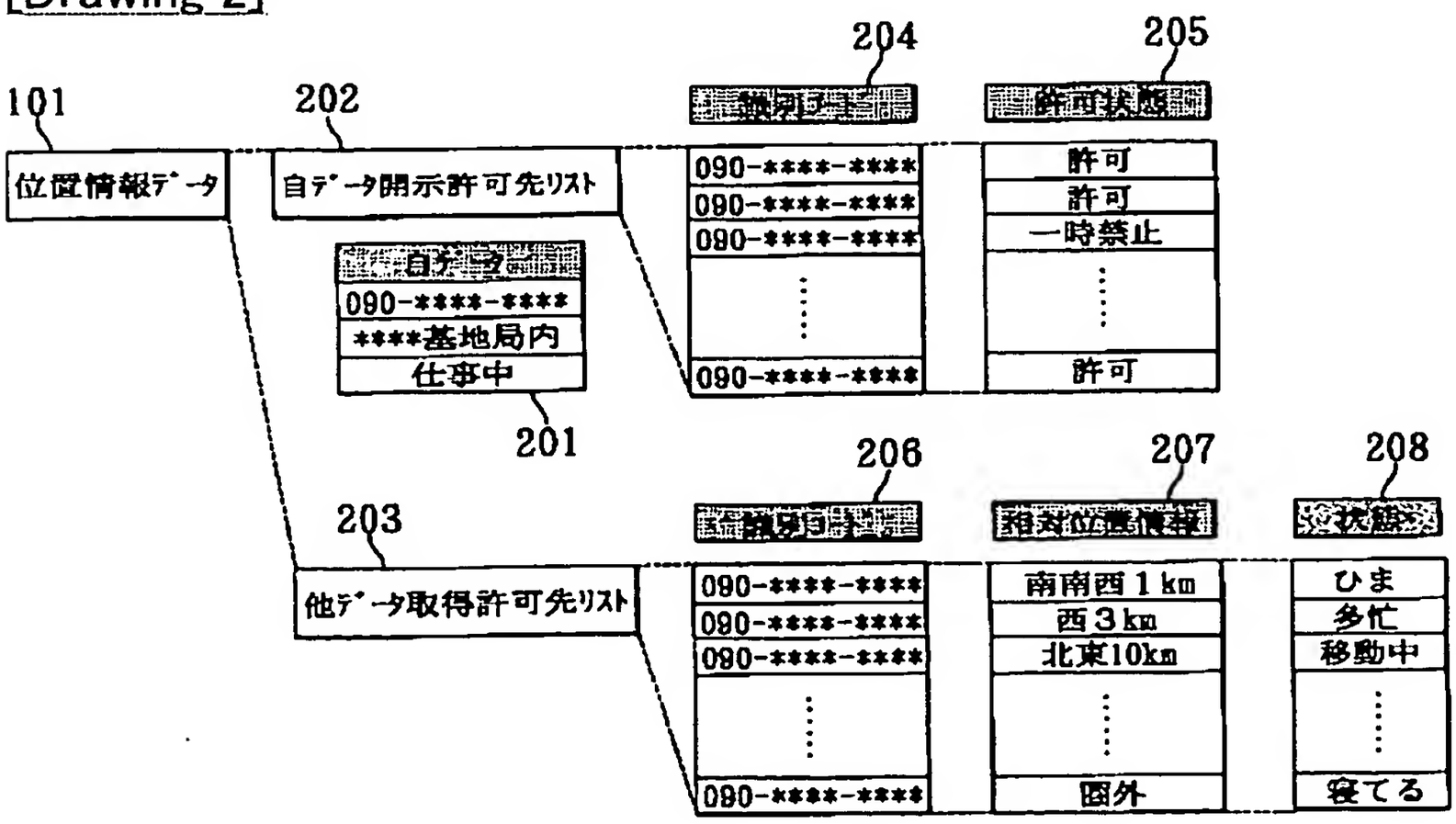
* NOTICES *

DRAWINGS

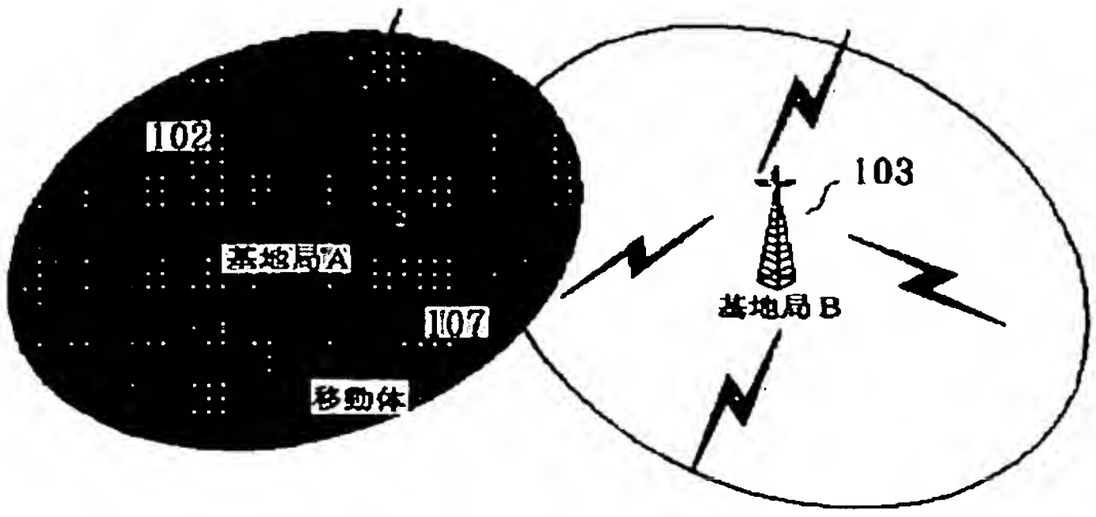
[Drawing 1]



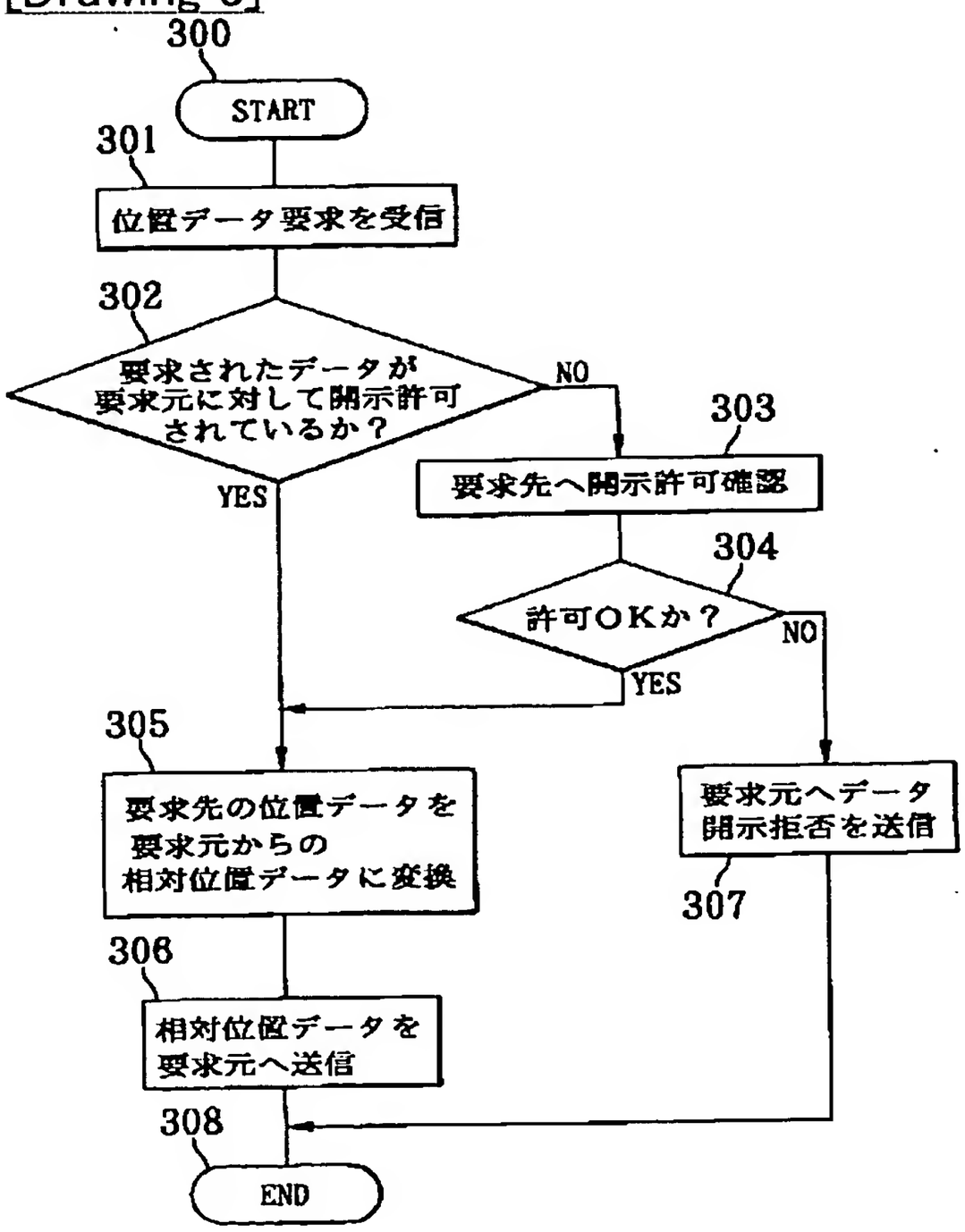
[Drawing 2]



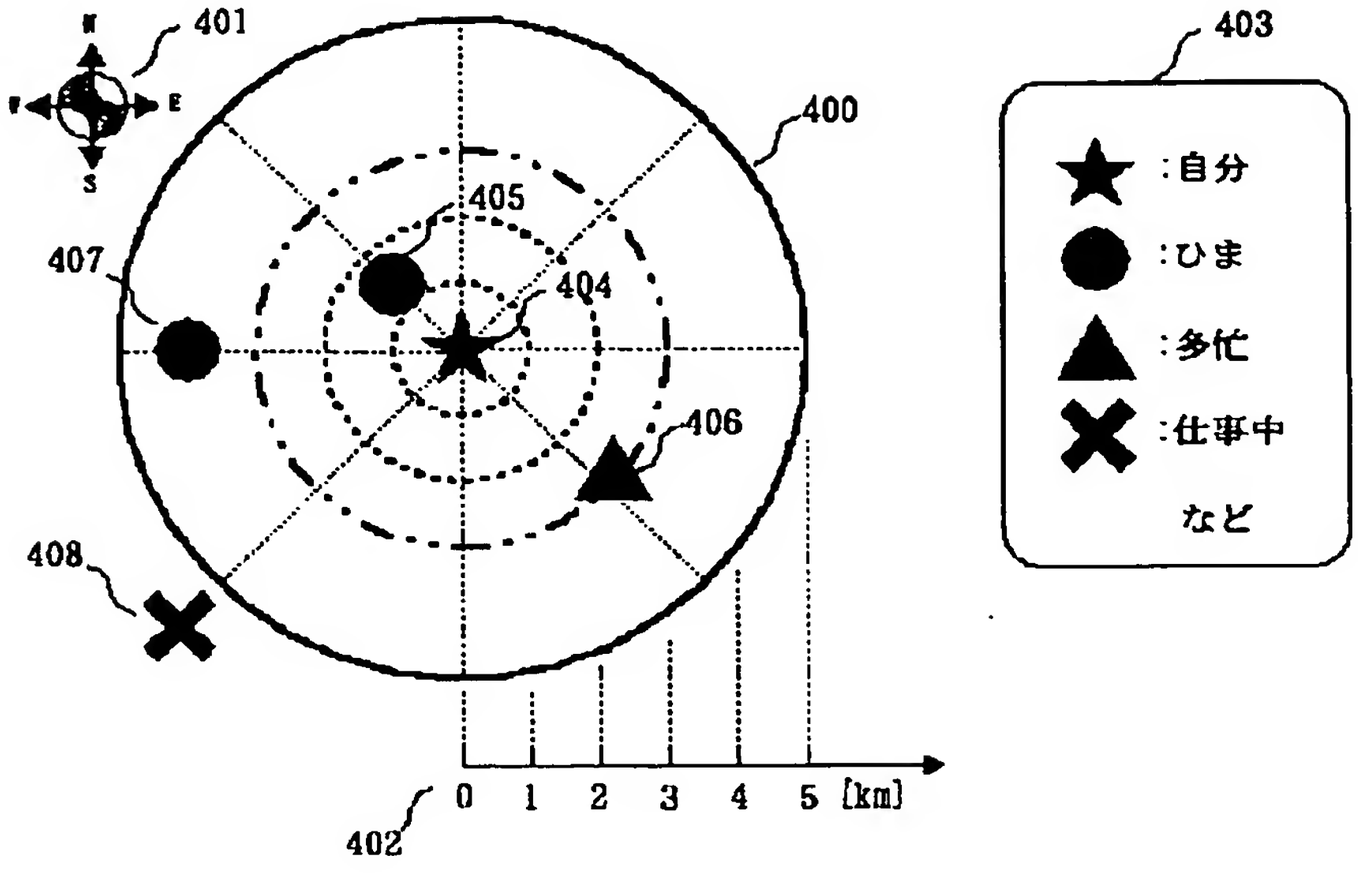
[Drawing 10]



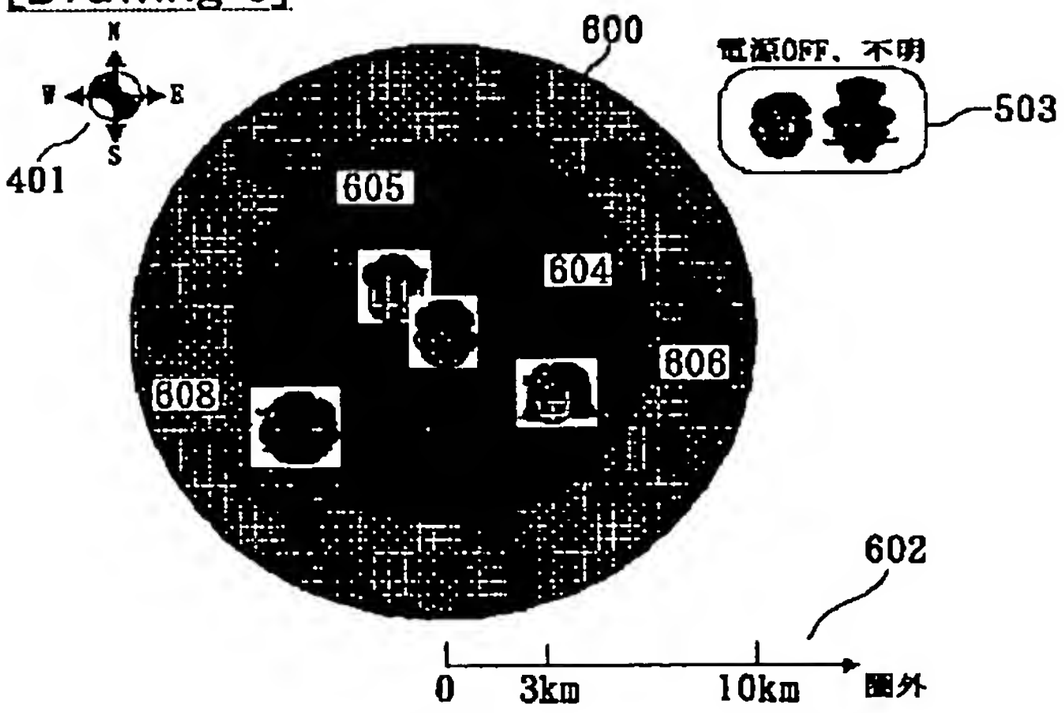
[Drawing 3]



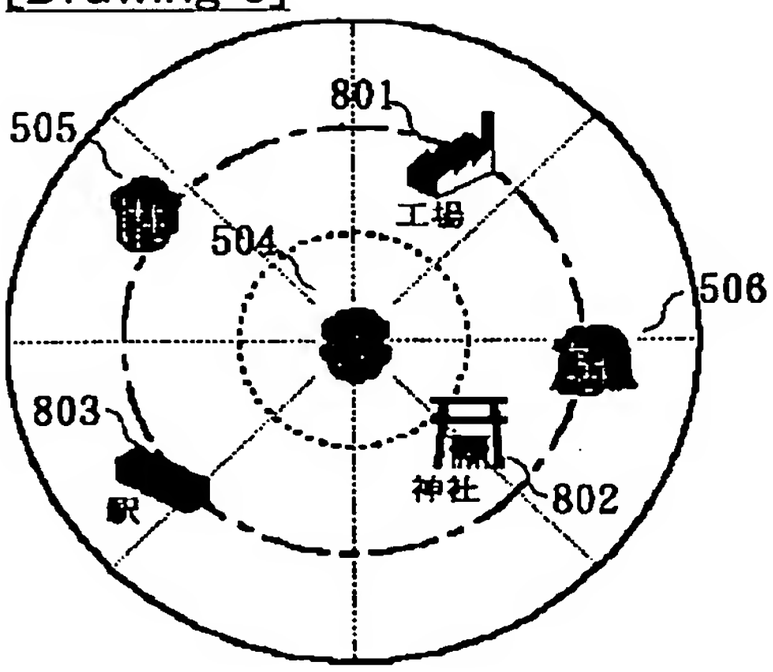
[Drawing 4]



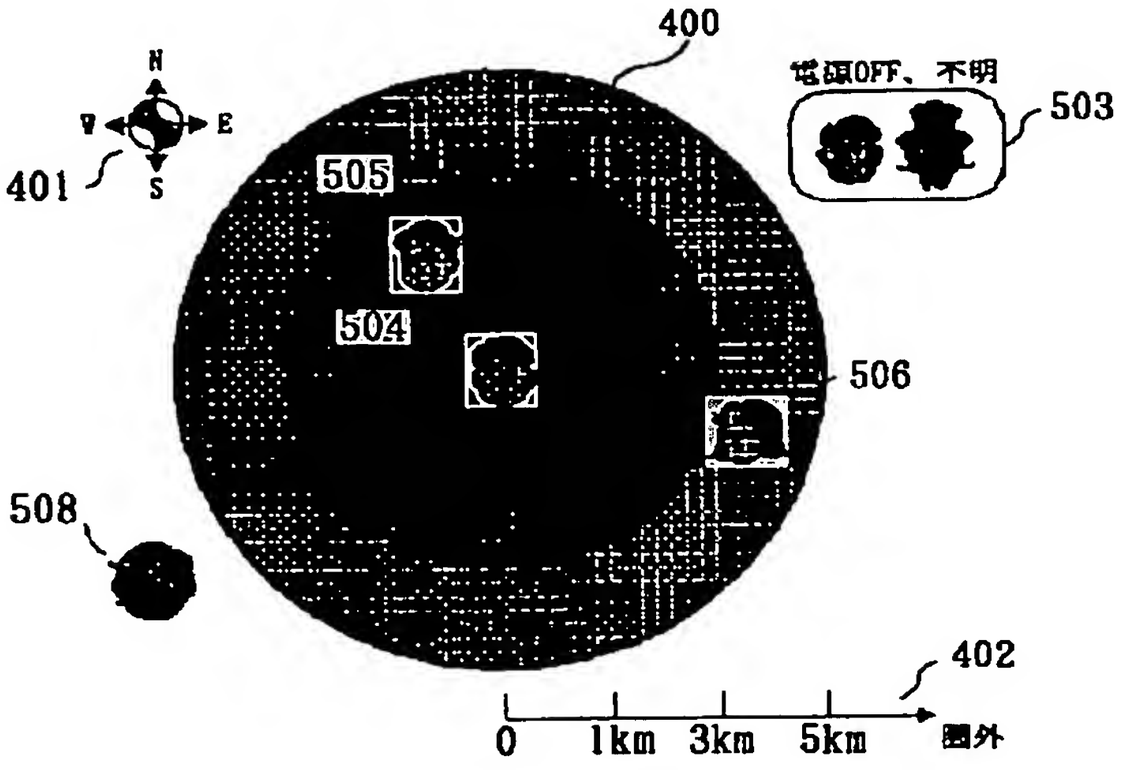
[Drawing 6]



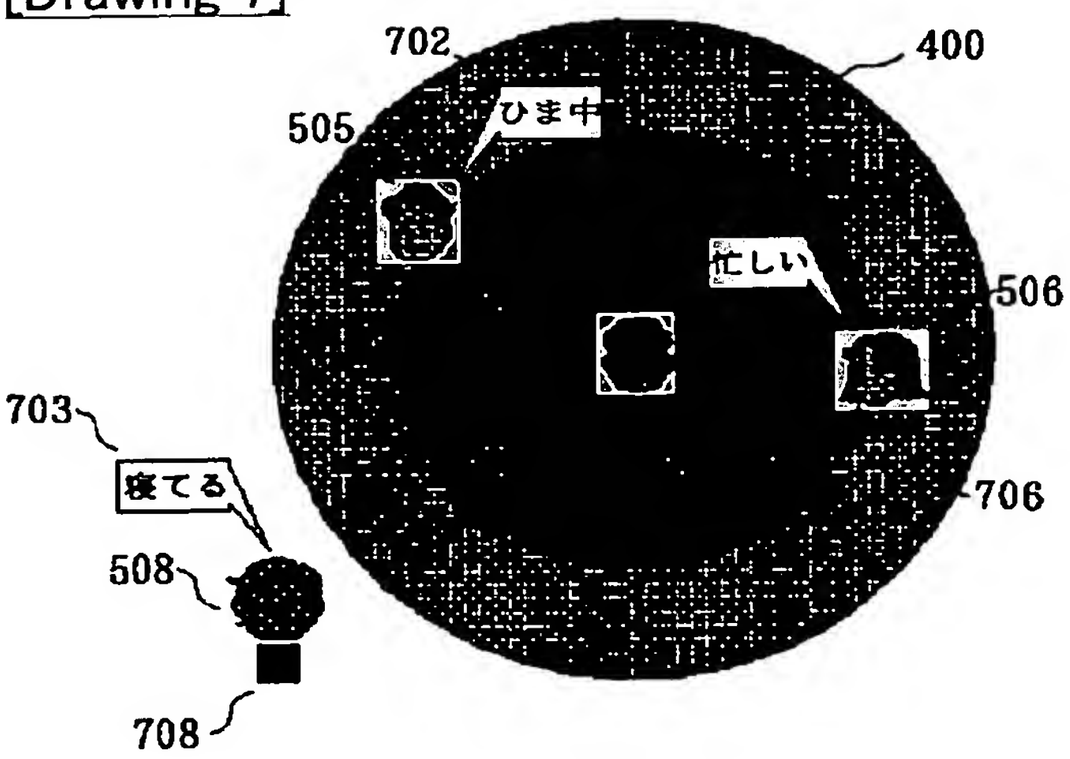
[Drawing 8]



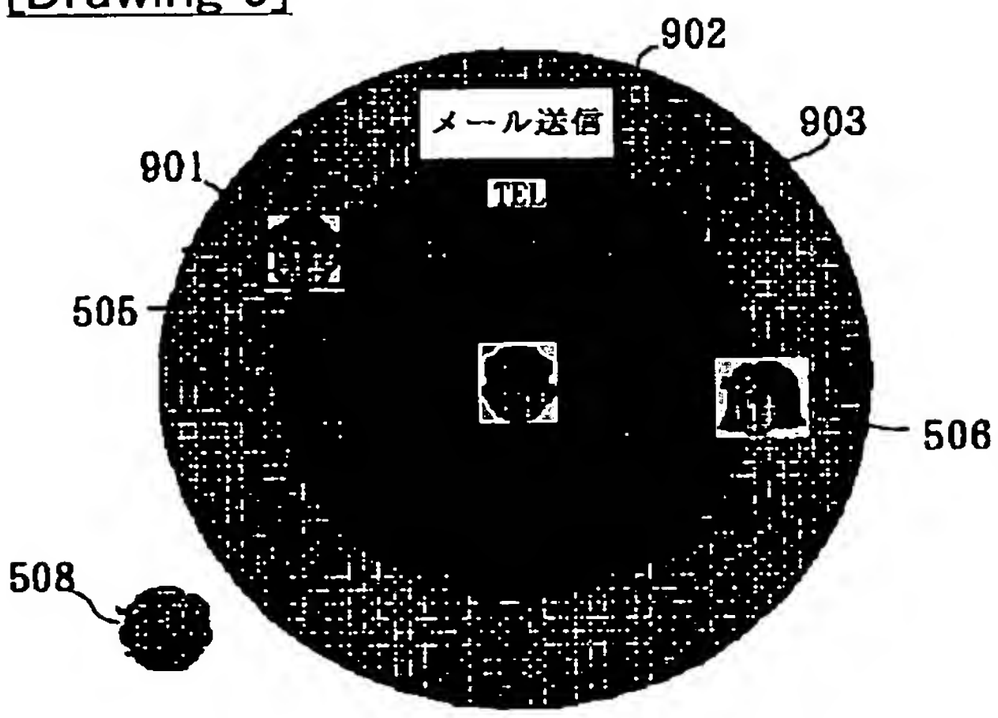
[Drawing 5]



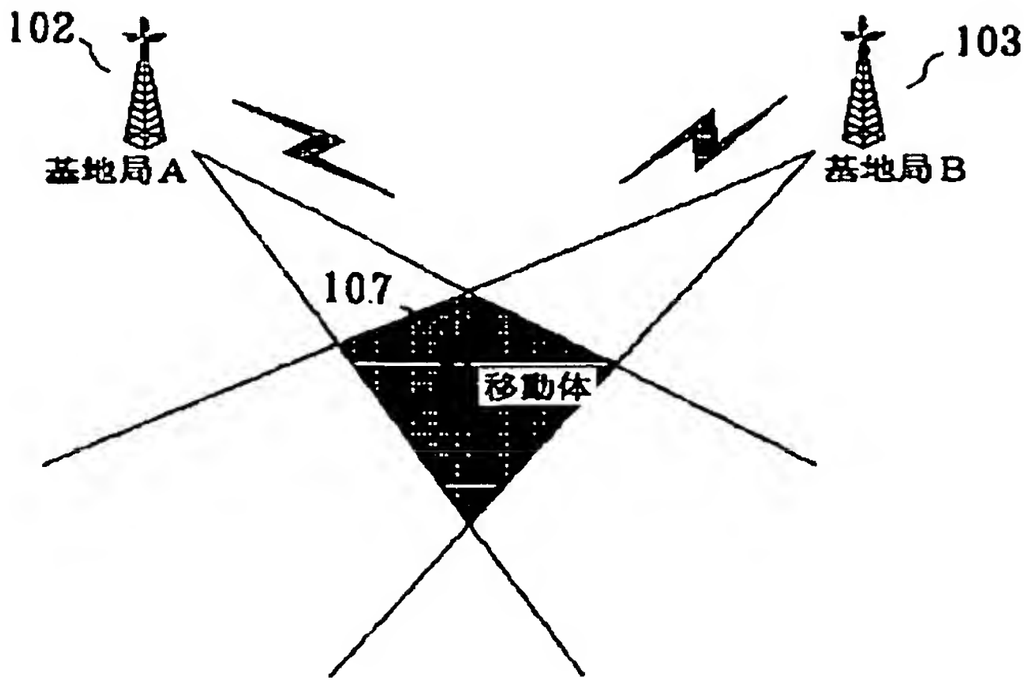
[Drawing 7]



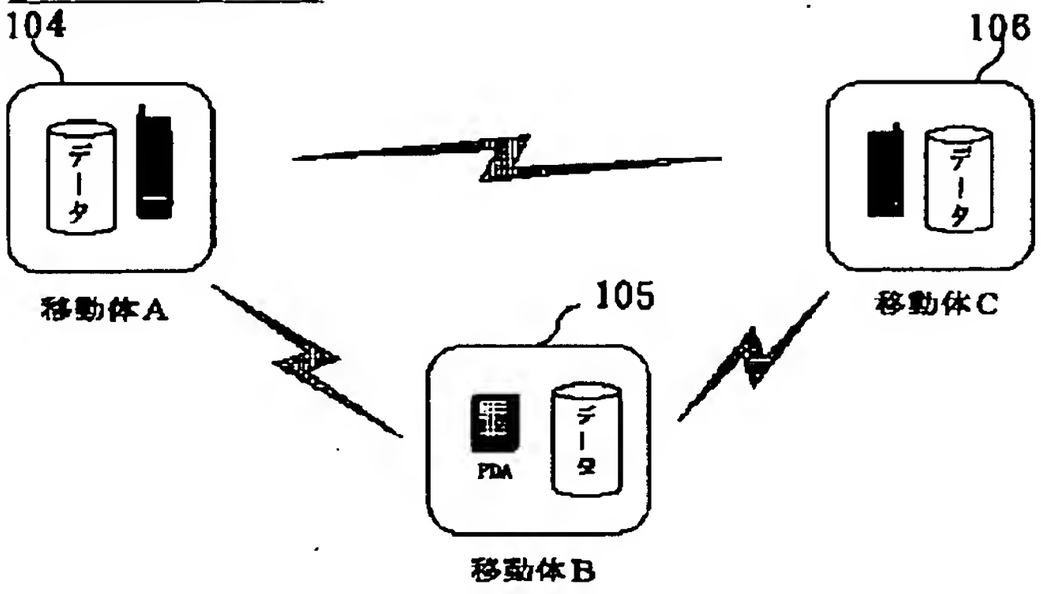
[Drawing 9]



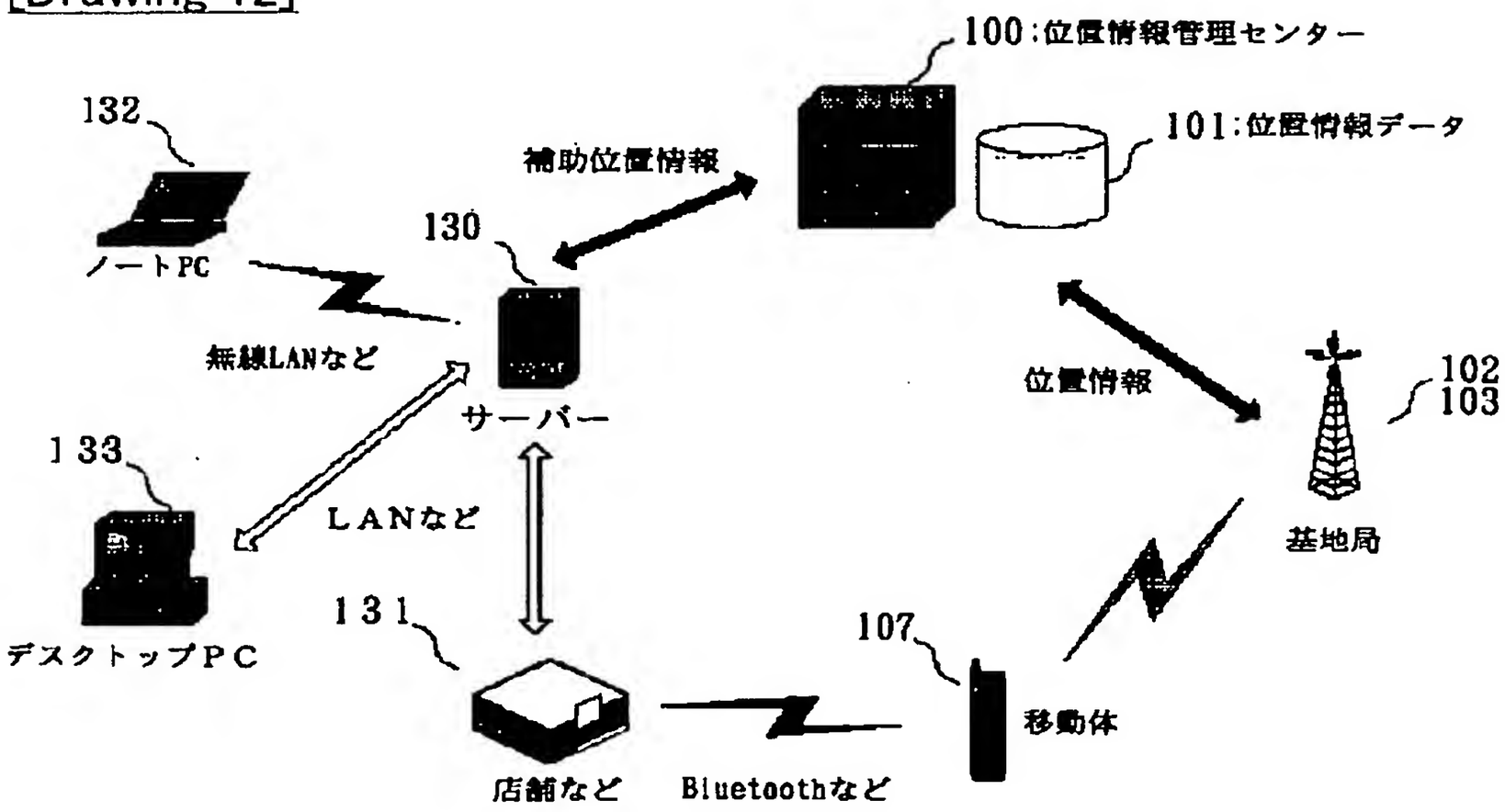
[Drawing 11]



[Drawing 13]



[Drawing 12]



[Translation done.]